

REMARKS

Applicants appreciate the Examiner's thorough consideration provided the present application. Claims 48-65 and 68-71 are now present in the application. Claims 48-65 and 68-71 have been amended. Claims 66, 67 and 72-80 have been cancelled. Claim 48 is independent. Reconsideration of this application, as amended, is respectfully requested.

Claim Rejections Under 35 U.S.C. §§ 102 & 103

Claims 48-55, 59, 60, 62-64, 66, 70, 74 and 77-79 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Bailey, U.S. Patent No. 6,028,315. Claims 56-58, 65, 67, 72 and 80 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Spero, U.S. Patent No. 3,911,318. Claim 61 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Son, U.S. Patent No. 4,073,770. Claims 68, 71 and 75 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Wang, U.S. Patent No. 6,135,838. Claim 69 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Spero, and further in view of Ressler, U.S. Patent No. 5,626,768. Claim 73 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Macklin, U.S. Patent No. 4,504,955. Claim 76 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of Shie, U.S. Patent No. 6,166,389. These rejections are respectfully traversed.

In light of the foregoing amendments to the claims, Applicants respectfully submit that these rejections have been obviated and/or rendered moot. As the Examiner will note, independent claim 48 has been amended to recite a combination of elements including "[a] fluid

treatment apparatus comprising: an ultraviolet light source including an ultraviolet lamp; a microwave energy source for exciting said ultraviolet lamp; and a waveguide for guiding microwave energy originating from said microwave energy source to the ultraviolet lamp, said waveguide being UV transparent and wholly surrounding the ultraviolet lamp, wherein the waveguide is provided with a blocking end flange; and a housing for said ultraviolet light source, said housing having an inlet and an outlet, the housing shaped to guide flow of a fluid to be treated from the inlet, past the waveguide to the outlet.” Support for the amendments to claim 48 can be found in the specification and FIGs. 1-4 as originally filed. Applicants respectfully submit that the above combination of elements as set forth in amended independent claim 48 is not disclosed nor suggested by the references relied on by the Examiner.

Bailey fails to disclose a fluid treatment apparatus as recited in amend claim 48. Instead, Bailey only discloses an apparatus to dry and sterilize containers used to contain liquids such as cosmetics, toilet preparations and the like (see col. 1, lines 3-6).

Spero fails to disclose “housing for said ultraviolet source, said housing having an inlet and an outlet, the housing shaped to guide flow of a fluid to be treated from the inlet, past the waveguide to the outlet” as recited in amended claim 48.

In fact, Spero discloses no housing for the ultraviolet source as recited in amended claim 48. In the claimed invention, a housing is provided for the ultraviolet light source including the ultraviolet lamp, the microwave energy source and the waveguide. Unlike the claimed invention, Spero in Fig. 5 and on col. 12, lines 21-41 discloses a fluid flow passage defined by inner annular vessel 72 that lies inner to the plasma vessel 71 and microwave chamber 74, and also quite separate from microwave energy sources 76, 77. In other words, in Spero’s apparatus, the

“ultraviolet lamp” (plasma vessel 71) and “waveguide” (microwave chamber 74) act to partly-house the fluid flow passage (inner annular vessel 72), and both of the microwave energy sources 76, 77 are quite separate from that fluid flow passage.

Accordingly, it is respectfully submitted that Spero would not guide the skilled person to have a “housing for said ultraviolet source, said housing having an inlet and an outlet, the housing shaped to guide flow of a fluid to be treated from the inlet, past the waveguide to the outlet” as recited in amended claim 48. Instead, reverse guidance would be given to an arrangement in which, an “ultraviolet lamp” (plasma vessel 71) and a “waveguide” (microwave chamber 74) partly-house the fluid flow passage (inner annular vessel 72), and microwave energy sources 76, 77 are provided separate from that fluid flow passage. Accordingly, the claimed invention clearly defines over the combination of Bailey and Spero.

In addition, Spero’s apparatus has the major disadvantage that the bore of the fluid flow passage (inner annular vessel 72) is necessarily quite narrow and also constrained by the diameter of the plasma vessel 71. This places a significant limitation on the rate of fluid flow that is achievable through the narrow passage, which in turn limits the rate of fluid treatment that may be achieved with Spero’s apparatus.

By contrast, the arrangement of the claimed invention, in which the ultraviolet light source is housed by an external housing that defines the fluid flow passage, enables much greater fluid flow passage (i.e. housing) cross-sections, which are not at all constrained by the diameter of the ultraviolet lamp. This increases the achievable rate of fluid flow through the housing, which in turn increases the rate of fluid treatment that may be achieved with the apparatus of the claimed invention. Unlike the claimed invention, Spero provides the skilled person with no

guidance at all to achieve the increased rate of fluid treatment that may be achieved with the apparatus of the claimed invention.

Furthermore, the claimed invention includes a feature that the waveguide is provided with a blocking end flange as recited in amended claim 48 to block microwaves. For example, as embodied in FIG. 1-4 of the instant application, the blocking end flanges 22, 122a, 122b, 222a, 222b and 322 serve to block microwaves. Neither Bailey nor Spero discloses or suggests any waveguide that is provided with a blocking end flange as recited in amended claim 48.

In particular, Bailey simply discloses a hollow column 110, which does not have any blocking end flange. Spero in Fig. 5 discloses an apparatus in which no blocking end flange is provided at either end 79 of the microwave chamber 74 (see also col. 12, lines 34-41). Therefore, both Bailey and Spero fail to teach “the waveguide is provided with a blocking end flange” as recited in amended claim 48.

With regard to the Examiner’s reliance on the other secondary references, those references have only been relied on for their teachings related to some dependent claims. Those references also fail to disclose the above combination of elements as set forth in amended independent claim 48. Accordingly, those references fail to cure the deficiencies of Bailey and Spero.

Accordingly, none of the references utilized by the Examiner individually or in combination teach or suggest the limitations of amended independent claim 48 or its dependent claims. Therefore, Applicants respectfully submit that independent claim 48 and its dependent claims clearly define over the teachings of the references relied on by the Examiner.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 102 and 103 are respectfully requested.

CONCLUSION

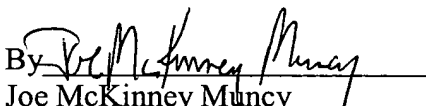
It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Joe McKinney Muncy, Registration No. 32,334 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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